



Monitoring report form (Version 03.2)

Monitoring report

Title of the project activity	Songya Hydropower Project
Reference number of the project activity	Ref.3176
Version number of the monitoring report	Version 1.0
Completion date of the monitoring report	03/03/2014
Registration date of the project activity	03/06/2010
Monitoring period number and duration of this monitoring period	1st monitoring period form 22/11/2010 to 31/01/2014
Project participant(s)	Pingli County Xinglong Water & Electricity Development Co., Ltd.
Host Party(ies)	People's Republic of China
Sectoral scope(s) and applied methodology(ies)	Sectoral Scope 1: Energy industries Methodology: AMS-I.D.:Grid connected renewable electricity generation---Version 13
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	165,881
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	135,638
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012(if applicable)	89,750
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).	45,888

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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The purpose of Songya Hydropower Project (hereafter, the project) is to utilize the hydrological resources of Lan River through construction of a run-of-river hydro project to generate zero emission electricity. The electricity generated by the project displaces part of the electricity generated by the Northwest Power Grid (NWPG) which is dominated by coal-fired power plants, and thus greenhouse gas (GHG) emissions are expected to be reduced. The estimated annual GHG emission reductions are 44,235tCO₂e/year during a seven years renewable crediting period.

The project is a small-scale newly-built run-of-river hydropower station, which is run by Pingli County Xinglong Water & Electricity Development Co., Ltd.. It involves three sets of 5 MW turbine generators and associate generators to generate electric power. The total installed capacity is 15,000 kW. The estimated annual power supply will be 50,775 MW·h which will be exported to the Northwest Power Grid of China (hereafter, the Grid or NWPG) through Shaanxi Power Grid.

The construction of the project activity was started on 01/12/2007. The project activity was put into operation on 01/05/2010. During the first monitoring period (22/11/2010 - 31/01/2014), the total emission reductions achieved is: 135,638 tCO₂e.

A.2. Location of project activity

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The project is located in Baxian town of Pingli county, Shaanxi Province of China, on the upper stream of Lan River which is the first branch on the south of Hanjiang River.

The project lies on the upstream of Lan River which is the first branch on the south of Hanjiang River. The Longitude is E 109°05'48" , and the Latitude is N 32°09'13" .

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
People's Republic of China (host)	Pinli County Xinglong Water&Electricity Development Co.,Ltd.	No

A.4. Reference of applied methodology

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The project operation has been monitoring in accordance with the requirements of the applicable monitoring methodology as described in PDD and the approved monitoring methodology AMS-I.D.(version 13).

<http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X>

Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion

<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf>

Tool to calculate the emission factor for an electricity system

<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf>

A.5. Crediting period of project activity

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The project employs the renewable crediting period(7 years), and the first starting date of the crediting period is 22/11/2010. The crediting period of the project activity is from 22/11/2010 to 21/11/2017.

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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The project activity consists of one site and has been implemented as described in the registered PDD. The project involves the installation of three sets of 5 MW hydro turbine and generator units. The start date of the project activity is 01/12/2007, when the construction permit was issued. The project activity was put into commercial operation on 01/05/2010.

During this monitoring period, the hydro turbine and generator units and the monitoring meters of the project operated normally, no malfunction or replacement of equipments took place. There are no events or situations that occurred during this monitoring, which could impact the applicability of the applied methodology.

The key technical indicators of the turbines and generators of the project are listed in the following table:

Generator	Type	SF5000-8/2600
	Unit	3
	Rated capacity	5000 kW
	Rated power factor	0.80
	Rated revolution	750 r/min
	Rated voltage	6.3 kV
Turbine	Type	HJ JF2503-LJ-92
	Unit	3
	Rated revolution	750.0 r/min
	Maximum water head	95.94 m
	Rated water head	94.63 m

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan or applied methodology

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N/A

B.2.2. Corrections

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N/A

B.2.3. Permanent changes from registered monitoring plan or applied methodology

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N/A

B.2.4. Changes to project design of registered project activity

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N/A

B.2.5. Changes to start date of crediting period

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N/A

B.2.6. Types of changes specific to afforestation or reforestation project activity

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N/A

SECTION C. Description of monitoring system

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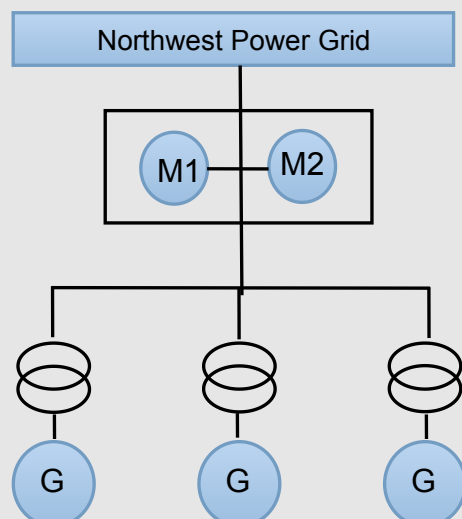
Operational and Management Structure For Monitoring**Data collection procedures**

The electric energy metering system was equipped according to the requirements of the Technical administrative code of electric energy metering (DL/T448-2000).

According to the Methodology AMS-I.D. (ver.17) and given that the emission factor is ex-ante calculated, the data to be monitored is the electricity supplied to and exported from the Grid by the project activity, as well as the net electricity supplied to the grid.

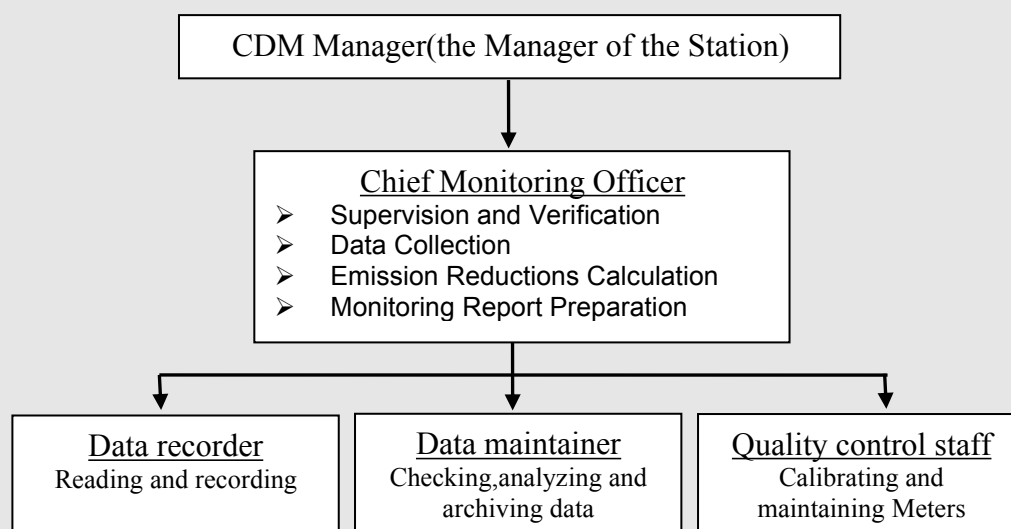
So, bi-directional electricity meters are installed to measure the quantity of electricity from and to the grid by the project activity. Specifically, meter M1(main meter) and M2 (back-up meter)are installed at the project site to measure the electricity supplied to the grid by the project activity and the electricity consumption by the project activity from the grid, which are the main electricity meters for emission reduction calculation.

The line diagram showing meter location is as follows:



Organizational structure, roles and responsibilities

In order to ensure the monitor plan work effectively and efficiently, the project owner established the processing and managing structure. Clear roles and responsibilities will be assigned to the team members. The team generally includes a project manager, data recorders, meter maintainer and quality control personnel(see following Figure).



Calibration and maintenance of the electricity meter

The metering equipment will be configured and checked periodically in compliance with the National Guidelines "Technical administrative code of electric energy metering" (DL/T448-2000).

If there are any substantial discrepancies between the meters, the calibration and testing of the meters should be carried out by the certified company. The calibration records will be provided to and maintained by the owner, and readily accessible for DOE.

Data and records management

The site operators are in charge of reading and recording the meters, and the accumulated data on electricity meters are recorded per month and aggregated into monthly report.

The monthly report is checked and the emission reductions are calculated by CDM project manager. The electricity sales receipts or invoices are used for crosscheck. All data required for verification and issuance will be kept for at least two years after the end of the crediting period or the last issuance of CERs of this project, whichever occurs later.

Emergency procedures for the monitoring system

In case the main meter(M1) for monitoring electricity from and to the grid is out of service, calibrated backup meter(M2) is to be used and the data in the malfunction period measured by backup meters are used to calculate the emission reduction. The starting time and the ending time will be recorded carefully; and the report needs to be archived and provided to DOE

During this monitoring period, no emergency situations happened.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data / Parameter:	EF_y
Unit:	tCO ₂ /MWh
Description:	Baseline emission calculation
Source of data:	Calculated according to the procedure outlined in B.6.3 of the registered PDD
Value(s) applied:	0.8712
Purpose of data:	The data is used for the baseline emission calculation.
Additional comment:	This parameter is ex ante determined in PDD and fixed during the first 7-year crediting period

D.2. Data and parameters monitored

(Copy this table for each piece of data and parameter.)

Data / Parameter:	EG_{exported,y}		
Unit:	MWh		
Description:	Electricity supplied by the project activity to the grid in year y		
Measured/ Calculated / Default:	Measured		
Source of data:	Meter records		
Value(s) of monitored parameter:	155844.50		
Monitoring equipment:	Bi-directional meter		
	Meter	M1(main meter)	M2(back-up meter)
	Type	DTSD2815	DTSD2815
	Accuracy Class	0.5s	0.5s
	Serial Number	DN003379	DN003380
	Calibration date and validity	Calibration: 20/03/2010 validity: to 19/03/2014	
	Calibration Entity	Calibrated by An Kang Electricity Supply Company Energy Metering Center according to the technical standard (JJG596-1999)	

Measuring/ Reading/ Recording frequency:	Measured continuously and reported on a monthly basis
Calculation method (if applicable):	The difference of the quantity of the electricity exported and the electricity imported of the main meter M1.
QA/QC procedures:	Meters will be calibrated periodically according to national standard and the readings will be cross-checked by receipt.
Purpose of data:	The data is used for baseline emission calculation.
Additional comment:	N/A

Data / Parameter:	EG _{imported,y}		
Unit:	MWh		
Description:	Electricity imported by the project activity to the grid in year y		
Measured/ Calculated / Default:	Measured		
Source of data:	Meter records		
Value(s) of monitored parameter:	152.8		
Monitoring equipment:	Bi-directional meter		
	Meter	M1(main meter)	M2(back-up meter)
	Type	DTSD2815	DTSD2815
	Accuracy Class	0.5s	0.5s
	Serial Number	DN003379	DN003380
	Calibration date and validity	Calibration: 20/03/2010 validity: to 19/03/2014	
	Calibration Entity	Calibrated by An Kang Electricity Supply Co Energy Metering Center according to the tech standard (JJG596-1999)	
Measuring/ Reading/ Recording frequency:	Measured continuously and reported on a monthly basis		
Calculation method (if applicable):	N/A		
QA/QC procedures:	Meters will be calibrated periodically according to national standard and the readings will be cross-checked by receipt.		
Purpose of data:	The data is used for baseline emission calculation.		
Additional comment:	N/A		

Data / Parameter:	EG_y
Unit:	MWh
Description:	Net Electricity supplied by the project activity to the grid in year y

Measured/ Calculated / Default:	Calculated based on the difference between electricity supplied to the grid ($EG_{\text{exported},y}$) and imported from the grid ($EG_{\text{import},y}$), which are read by the meter.
Source of data:	Meter records
Value(s) of monitored parameter:	155691.7
Monitoring equipment:	Bi-directional meter: M1
Measuring/ Reading/ Recording frequency:	Measured continuously and reported on a monthly basis
Calculation method (if applicable):	The difference of the quantity of the electricity exported and the electricity imported of the main meter M1.
QA/QC procedures:	Meters will be calibrated periodically according to national standard and the readings will be cross-checked by receipt.
Purpose of data:	The data is used for baseline emission calculation.
Additional comment:	N/A

D.3. Implementation of sampling plan

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N/A

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

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According to the methodology and registered PDD, the baseline emissions calculation is:

$$BE_y = EG_y \times EF_y$$

$$EG_y = EG_{\text{exported},y} - EG_{\text{imported},y}$$

where:

BE_y is the baseline emissions for the project activity during the monitoring period in tons of CO₂,

EG_y is the net electricity supplied to the grid by the project activity during the

monitoring period in MWh,

EF_y is the combined baseline emission factor for the project activity determined in the registered PDD of the project ex ante in tons of CO₂ per MWh,

$EG_{\text{exported},y}$ is the electricity exported by the project activity to the grid during the monitoring period in MWh,

$EG_{\text{imported},y}$ is the electricity imported by the project activity from the grid during the monitoring period in MW,

EF_y was calculated ex ante and will not be changed during the first 7-year monitoring period. As per the PDD of the Project the value is 0.8712 tCO₂e/MWh.

Baseline emissions are calculated with baseline emission factor (EF_y) and the net electricity supplied by the Project to the grid (EG_y), as follows:

$$BE_y = EG_y \times EF_y = (EG_{\text{exported},y} - EG_{\text{imported},y}) \times 0.8712$$

Baseline emissions during this monitoring period are shown in the Table below:

Period		Electricity exported to the grid (MWh)	Electricity imported from the grid (MWh)	Net Electricity exported to the grid (MWh)	baseline emission factor (tCO ₂ /MWh)	BE _y (tco ₂)
From	To	EG exported,y	EG imported,y	EG exported,y-EG imported,y	(EF _y)	BE _y
22/11/2010	30/11/2010	1013.2	0	1013.2	0.8712	882.70
01/12/2010	31/12/2010	3506.2	0	3506.2	0.8712	3054.60
01/01/2011	31/01/2011	3489.7	0	3489.7	0.8712	3040.23
01/02/2011	28/02/2011	3162.4	0	3162.4	0.8712	2755.08
01/03/2011	31/03/2011	3501.3	0	3501.3	0.8712	3050.33
01/04/2011	30/04/2011	3381.5	0	3381.5	0.8712	2945.96
01/05/2011	31/05/2011	3505.8	0	3505.8	0.8712	3054.25
01/06/2011	30/06/2011	4888.9	41.7	4847.2	0.8712	4222.88
01/07/2011	31/07/2011	5616.8	0	5616.8	0.8712	4893.36
01/08/2011	31/08/2011	5620.2	0	5620.2	0.8712	4896.32
01/09/2011	30/09/2011	5452.3	0	5452.3	0.8712	4750.04
01/10/2011	31/10/2011	3943.5	0	3943.5	0.8712	3435.58
01/11/2011	30/11/2011	3398.8	0	3398.8	0.8712	2961.03
01/12/2011	31/12/2011	3498.4	0	3498.4	0.8712	3047.81
01/01/2012	31/01/2012	3494.9	0	3494.9	0.8712	3044.76
01/02/2012	29/02/2012	3259.1	0	3259.1	0.8712	2839.33
01/03/2012	31/03/2012	3488.7	0	3488.7	0.8712	3039.36
01/04/2012	30/04/2012	3373.4	0	3373.4	0.8712	2938.91
01/05/2012	31/05/2012	3490.1	0	3490.1	0.8712	3040.58
01/06/2012	30/06/2012	5427.3	0	5427.3	0.8712	4728.26
01/07/2012	31/07/2012	5626.5	0	5626.5	0.8712	4901.81

01/08/2012	31/08/2012	5622.0	0	5622.0	0.8712	4897.89
01/09/2012	30/09/2012	4542.7	69.2	4473.5	0.8712	3897.31
01/10/2012	31/10/2012	3931.2	0	3931.2	0.8712	3424.86
01/11/2012	30/11/2012	3386.0	0	3386.0	0.8712	2949.88
01/12/2012	31/12/2012	3508.5	0	3508.5	0.8712	3056.61
01/01/2013	31/01/2013	3493.3	0	3493.3	0.8712	3043.36
01/02/2013	28/02/2013	3150.8	0	3150.8	0.8712	2744.98
01/03/2013	31/03/2013	3494.7	0	3494.7	0.8712	3044.58
01/04/2013	30/04/2013	3382.5	0	3382.5	0.8712	2946.83
01/05/2013	31/05/2013	3164.2	41.9	3122.3	0.8712	2720.15
01/06/2013	30/06/2013	5435.5	0	5435.5	0.8712	4735.41
01/07/2013	31/07/2013	5627.2	0	5627.2	0.8712	4902.42
01/08/2013	31/08/2013	5628.9	0	5628.9	0.8712	4903.90
01/09/2013	30/09/2013	5430.5	0	5430.5	0.8712	4731.05
01/10/2013	31/10/2013	3930.8	0	3930.8	0.8712	3424.51
01/11/2013	30/11/2013	3392.4	0	3392.4	0.8712	2955.46
01/12/2013	31/12/2013	3265.6	0	3265.6	0.8712	2844.99
01/01/2014	31/01/2014	3318.7	0	3318.7	0.8712	2891.25
Total		155844.50	152.8	155691.7	0.8712	135638.61

E.2. Calculation of project emissions or actual net GHG removals by sinks

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The project is a run-of-river hydropower plant, therefore the project emission should not be considered, e.g. the emissions of the project is zero, P_{Ey} = 0

E.3. Calculation of leakage

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According to AMS-I.D. (ver.13), no leakage is considered because the energy generating equipment is not transferred from another activity and the existing equipment is not transferred to another activity.

L_y = 0 tCO₂e

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

➤ Item	Baseline emissions or baseline net GHG removals by sinks (t CO ₂ e)	Project emissions or actual net GHG removals by sinks (t CO ₂ e)	Leakage (t CO ₂ e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO ₂ e)
➤ Total	135,638	0	0	135,638

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
➤ Emission reductions or GHG removals by sinks (t CO ₂ e)	165,881	135,638

E.6. Remarks on difference from estimated value in registered PDD

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The estimated annual emission reduction in the registered PDD is based on a long term average hydrological data in the feasibility study phase, which cannot be strictly applied in a single monitoring period. Thus, the slight difference can be accepted. Since the actual value reached during the monitoring period is less than the ex-ante calculation of the registered PDD, no explanation is need according to the monitoring report guideline.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

➤ Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
➤ Emission reductions or GHG removals by sinks (t CO ₂ e)	89,750	45,888

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.
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Document Type: Form		
Business Function: issuance		
Keywords: monitoring report, performance monitoring		